

	OFICINA DE CENTROS DE DIAGNÓSTICO Y PRODUCCIÓN										UNIDAD DEL CENTRO DE CONTROL DE INSUMOS Y RESIDUOS TÓXICOS																		
											REG-UCCIRT/Lab- 61																		
	REGISTRO: HOJA DE TRABAJO DE ENSAYOS										Revisión: 02					Pag ____													
LABORATORIO DE ANÁLISIS DE RESIDUOS TÓXICOS																													
NOMBRE DE ENSAYO: DETERMINACIÓN DE ARSÉNICO, CADMIO, CROMO, PLOMO, MERCURIO Y OTROS ELEMENTOS EN PIENSOS POR PLASMA INDUCTIVAMENTE ACOPLADO A ESPECTROMETRÍA DE MASA ICP-MS.										01664.001 (S/N) 01665.001(S/N), 01666.001 (S/N), 01667.001 (S/N), 01668.001 (S/N), 01669.001 (S/N), 01671.001 (S/N), 01672.001 (S/N), 01711.001 (01), 01712.001 (01 Inicio) 01713.001 (01A), 01714.001 (01A(CRECIMIENTO)), 01715.001 (01 A (GESTANTE)), 01745.001 (S/N), 01746.001001 (S/N), 01747.001001 (S/N), 01758.001 (20240521), 01759.001 (21052024), 01785.001 (CRECIMIENTO), 01786.001 (DESARROLLO), 01797.001 (S/L), 01800.001 (SIN LOTE), 01801.001 (SIN LOTE), 01806.001 (1), 01809.001 (1), 01811.001 (1), 01812.001 (1), 01813.001 (c120524) 1664.001 1665.001 1666.001 1667.001 1668.001 1669.001 1671.001 1672.001 1758.001 1759.001 1785.001 1806.001 1711.001 1712.001 1714.001 1715.001 1786.001 1809.001 1812.001 1813.001 1713.001 1745.001 1746.001 1747.001 1811.001																			
HOJA DE TRABAJO N° EMS/RES - 11 - 18 N° LOTE /CODIGO:																													
MUESTRA O PRODUCTO : PRODUCTO - PIENSOS																													
NOMBRE DEL METODO : DETERMINACIÓN DE ARSÉNICO, CADMIO, CROMO, PLOMO, MERCURIO Y OTROS ELEMENTOS EN PIENSOS POR PLASMA INDUCTIVAMENTE ACOPLADO A ESPECTROMETRÍA DE MASA ICP-MS CODIGO DE MUESTRA:																													
CODIGO DE METODO UCCIRT: MET-UCCIRT/Res-86																													
REFERENCIA DEL METODO UCCIRT : FDA U.S. Food and Drug Administration Inductively Coupled Plasma-Mass Spectrometric Determination of Arsenic, Cadmiun, Chromiun, Lead, Mercury, and other Elements in Food Using Microwaveassisted Digestion, Version 1.2 (February 2020). FECHA DE ANÁLISIS:										31/05/2024																			
EQUIPO: ICP- MS		MARCA: Agilent		MODELO: 7900		SÉRIE: SG20214862																							
N° IDENT: EMS/RES-11																													
ESTANDAR																													
		Tuning Solution			Internal Standard mix				Calibration Standard																				
Concentracion inicial (ppb)		1 ug/L			ICP-MS-IS-MIX 1-1 (10 ug/mL), Ge (1000 ug/mL), Rh (100 ug/mL)				10ug/mL (IV-STOCK-27), 5 ug/mL(Hg), 100 ug/mL(Cu,Mn,Zn), 1000 ug/mL(Mo)																				
Lote		2235404-100			ICP-MS-IS-MIX 1-1 (221045125-01), Ge (S2-GE707432), Rh (220025110)				T2-MEB725047(IV-STOCK-27); T2-MEB724445(Hg); 2308347-100(Cu); 2305316-100(Mn); 2308223-100(Zn); S2-MO707926(Mo)																				
Volumen (uL)		20uL (Aforo 200mL)			ICP-MS-IS-MIX 1-1 (2 mL), Ge (20 uL), Rh (200 uL)				Zn,Cu,Mn(2.25,4.5,45,112.5,225)uL; IV-STOCK-27 , Mo (2.5,5.50,125,250)uL ; Hg (5,10,20,30,40)uL																				
Concentración final (ppb)		1 ug/L			100 ug/L				/L, 0.05ug/L, 0.1ug/L, 1ug/L, 2.5ug/L, 5ug/L); Zn,Cu,Mn(0 ug/L, 5ug/L, 10ug/L, 100ug/L, 250ug/L, 500ug/L; IV-STOCK-27(0 ug/L, 0.5ug/L, 1ug/L, 10ug/L, 25ug/L,																				
Fecha		ICP-MS-TS-17-100 (31/08/2024)			ICP-MS-IS-MIX 1-1 (04/06/2024), Ge (14/08/2026), Rh (27/02/2025)				12/10/2027 (IV-STOCK-27), 29/09/2027 (Hg), 31/05/2024 (Zn), 31/05/2024 (Mn), 31/05/2024 (Cu); 17/08/2026 (Mo)																				
CONDICIONES DE EQUIPO																													
EQUIPO		SENSITIVITY			DOUBLY CHARGED		OXIDE		CONSTANTE DE CORRELACION																				
		MODO GAS (He)							R > 0.9975																				
		59Co ≥ 23800 cps / ug/L			70Ce/140Ce<2.3%		156 CeO/140Ce<1.38%																						
		89Y ≥ 5000 cps / ug/L																											
		205Tl ≥ 5000 cps / ug/L																											
Valor Detectado					0.988		0.448		Cr =		0.9999				Zn =		1.0000				Cd =		1.0000						
		Mn =		0.9999							As =		1.0000				Hg =		0.9997										
		Ni =		1.0000							Se =		0.9999				Pb =		0.9999										
		Cu =		0.9998							Mo =		1.0000																
MUESTRA																													
N° Vaso	Muestras		Peso o Vol. (g o mL)	Factor de Dilución	Factor Peso	peso en gramos		Observación																					
27	1664.001	-----	0.2630	1		-----		PIENSOS PARA AVES																					
28	1665.001	-----	0.2838	1		-----		PIENSOS PARA AVES																					
29	1666.001	-----	0.2670	1		-----		PIENSOS PARA AVES																					
30	1667.001	-----	0.2840	1		-----		PIENSOS PARA AVES																					
31	1668.001	-----	0.2578	1		-----		PIENSOS PARA AVES																					
32	1669.001	-----	0.2588	1		-----		PIENSOS PARA AVES																					
33	1671.001	-----	0.2866	1		-----		PIENSOS PARA AVES																					
34	1672.001	-----	0.2770	1		-----		PIENSOS PARA AVES																					
35	1758.001	-----	0.2700	1		-----		PIENSOS PARA AVES																					
36	1759.001	-----	0.2860	1		-----		PIENSOS PARA AVES																					
39	1785.001	-----	0.2506	1		-----		PIENSOS PARA AVES																					
40	1806.001	-----	0.2600	1		-----		PIENSOS PARA AVES																					
41	1711.001	-----	0.2540	1		-----		PIENSOS PARA PORCINO																					
42	1712.001	-----	0.3156	1		-----		PIENSOS PARA PORCINO																					
43	1714.001	-----	0.2616	1		-----		PIENSOS PARA PORCINO																					
44	1715.001	-----	0.2868	1		-----		PIENSOS PARA PORCINO																					
45	1786.001	-----	0.2730	1		-----		PIENSOS PARA PORCINO																					
46	1809.001	-----	0.2650	1		-----		PIENSOS PARA PORCINO																					
47	1812.001	-----	0.2588	1		-----		PIENSOS PARA PORCINO																					
48	1813.001	-----	0.3284	1		-----		PIENSOS PARA PORCINO																					
51	1713.001	-----	0.2784	1		-----		MAIZ AMARILLO																					
52	1745.001	-----	0.2610	1		-----		MAIZ AMARILLO																					
53	1746.001	-----	0.2785	1		-----		MAIZ AMARILLO																					
54	1747.001	-----	0.2550	1		-----		MAIZ AMARILLO																					
55	1811.001	-----	0.2910	1		-----		MAIZ AMARILLO																					

CALCULOS PRELIMINARES																																			
		DATA CRUDO (ug/L)											Resta de blancos (ppb (ug/L))											(g)	mg/kg										
N° Vaso	Muestras	As	Cd	Cu	Cr	Mn	Hg	Mo	Ni	Pb	Se	Zn	As	Cd	Cu	Cr	Mn	Hg	Mo	Ni	Pb	Se	Zn	Peso	As	Cd	Cu	Cr	Mn	Hg	Mo	Ni	Pb	Se	Zn
27	1664.001	3.003	0.32	42.135	12.701	672.237	0.011	11.53	12.424	0.604	8.773	895.619	3.00	0.31	40.19	9.04	671.83	0.00	11.17	12.11	0.52	8.77	849.09	0.2630	0.6	0.1	7.6	1.7	127.7	0.0	2.1	2.3	0.1	1.7	161.4
28	1665.001	2.158	0.206	921.488	6.719	627.716	0.019	12.008	10.511	0.682	3.274	1010.278	2.15	0.19	919.54	3.06	627.31	0.01	11.65	10.20	0.59	3.27	963.75	0.2838	0.4	0.0	162.0	0.5	110.5	0.0	2.1	1.8	0.1	0.6	169.8
29	1666.001	4.604	0.178	154.24	7.105	603.015	0.016	7.793	10.616	0.559	0.85	476.459	4.60	0.16	152.29	3.44	602.61	0.00	7.44	10.30	0.47	0.85	429.93	0.2670	0.9	0.0	28.5	0.6	112.8	0.0	1.4	1.9	0.1	0.2	80.5
30	1667.001	5.437	0.265	265.448	4.763	357.527	0.015	7.605	9.932	0.586	1.554	591.979	5.43	0.25	263.50	1.10	357.12	0.00	7.25	9.62	0.50	1.55	545.45	0.2840	1.0	0.0	46.4	0.2	62.9	0.0	1.3	1.7	0.1	0.3	96.0
31	1668.001	4.006	0.088	60.272	7.942	287.646	0.014	6.256	10.312	0.933	1.435	785.73	4.00	0.07	58.32	4.28	287.24	0.00	5.90	10.00	0.84	1.44	739.20	0.2578	0.8	0.0	11.3	0.8	55.7	0.0	1.1	1.9	0.2	0.3	143.4
32	1669.001	5.457	0.081	70.709	6.666	886.476	0.006	10.356	16.614	0.379	1.139	410.153	5.45	0.07	68.76	3.01	886.07	0.00	10.00	16.30	0.29	1.14	363.62	0.2588	1.1	0.0	13.3	0.6	171.2	0.0	1.9	3.1	0.1	0.2	70.3
33	1671.001	2.378	0.08	163.348	9.184	768.313	0.004	12.955	13.58	0.764	1.442	926.88	2.37	0.07	161.40	5.52	767.90	0.00	12.60	13.26	0.68	1.44	880.35	0.2866	0.4	0.0	28.2	1.0	134.0	0.0	2.2	2.3	0.1	0.3	153.6
34	1672.001	2.089	0.145	77.7	4.091	352.136	0.007	6.805	7.324	0.51	1.265	422.522	2.08	0.13	75.75	0.43	351.73	0.00	6.45	7.01	0.42	1.27	375.99	0.2770	0.4	0.0	13.7	0.1	63.5	0.0	1.2	1.3	0.1	0.2	67.9
35	1758.001	0.761	0.266	700.215	17.212	231.521	0.012	10.118	12.683	0.853	2.322	713.653	0.75	0.25	698.27	13.55	231.11	0.00	9.76	12.37	0.76	2.32	667.12	0.2700	0.1	0.0	129.3	2.5	42.8	0.0	1.8	2.3	0.1	0.4	123.5
36	1759.001	7.284	0.328	95.551	16.188	406.157	0.021	12.417	9.214	1.193	2.166	738.329	7.28	0.31	93.60	12.53	405.75	0.01	12.06	8.90	1.10	2.17	691.80	0.2860	1.3	0.1	16.4	2.2	70.9	0.0	2.1	1.6	0.2	0.4	120.9
39	1785.001	1.541	0.255	25.888	4.65	177.526	0.017	10.526	5.983	0.595	1.085	182.457	1.53	0.24	23.94	0.99	177.12	0.00	10.17	5.67	0.51	1.09	135.92	0.2506	0.3	0.0	4.8	0.2	35.3	0.0	2.0	1.1	0.1	0.2	27.1
40	1806.001	31.898	0.149	68.389	9.779	385.75	0.017	10.692	5.449	0.811	1.486	492.118	31.89	0.13	66.44	6.12	385.34	0.00	10.34	5.13	0.72	1.49	445.59	0.2600	6.1	0.0	12.8	1.2	74.1	0.0	2.0	1.0	0.1	0.3	85.7
41	1711.001	1.056	0.094	32.001	8.775	459.885	0.009	5.146	6.367	0.407	2.992	1073.781	1.05	0.08	30.05	5.11	459.48	0.00	4.79	6.05	0.32	2.99	1027.25	0.2540	0.2	0.0	5.9	1.0	90.4	0.0	0.9	1.2	0.1	0.6	202.2
42	1712.001	4.379	0.244	48.125	8.931	293.695	0.014	11.639	11.82	1.042	1.428	911.57	4.37	0.23	46.18	5.27	293.29	0.00	11.28	11.50	0.95	1.43	865.04	0.3156	0.7	0.0	7.3	0.8	46.5	0.0	1.8	1.8	0.2	0.2	137.0
43	1714.001	0.733	0.264	699.606	16.373	351.786	0.011	10.66	7.988	0.586	2.077	755.219	0.73	0.25	697.66	12.71	351.38	0.00	10.30	7.67	0.50	2.08	708.69	0.2616	0.1	0.0	133.3	2.4	67.2	0.0	2.0	1.5	0.1	0.4	135.5
44	1715.001	1.591	0.484	922.539	33.861	327.729	0.007	10.091	7.223	0.507	2.101	535.764	1.58	0.47	920.59	30.20	327.32	0.00	9.74	6.91	0.42	2.10	489.23	0.2868	0.3	0.1	160.5	5.3	57.1	0.0	1.7	1.2	0.1	0.4	85.3
45	1786.001	8.63	0.109	51.729	8.933	218.663	0.011	10.799	6.187	0.946	0.942	600.208	8.62	0.09	49.78	5.27	218.25	0.00	10.44	5.87	0.86	0.94	553.68	0.2730	1.6	0.0	9.1	1.0	40.0	0.0	1.9	1.1	0.2	0.2	101.4
46	1809.001	0.592	0.157	105.658	5.332	83.131	0.007	10.262	4.715	0.341	0.833	188.861	0.59	0.14	103.71	1.67	82.72	0.00	9.91	4.40	0.25	0.83	142.33	0.2650	0.1	0.0	19.6	0.3	15.6	0.0	1.9	0.8	0.0	0.2	26.9
47	1812.001	9.045	0.105	34.887	14.538	215.003	0.006	9.19	7.842	0.556	0.833	460.605	9.04	0.09	32.94	10.88	214.59	0.00	8.83	7.53	0.47	0.83	414.07	0.2588	1.7	0.0	6.4	2.1	41.5	0.0	1.7	1.5	0.1	0.2	80.0
48	1813.001	7.461	0.231	49.209	10.064	227.277	0.008	11.78	7.811	0.689	1.017	5812.974	7.45	0.22	47.26	6.40	226.87	0.00	11.42	7.50	0.60	1.02	5766.44	0.3284	1.1	0.0	7.2	1.0	34.5	0.0	1.7	1.1	0.1	0.2	878.0
51	1713.001	0.225	0.036	7.267	3.21	13.811	0.017	3.421	1.536	0.089	0.415	93.531	0.22	0.02	5.32	0.00	13.40	0.00	3.07	1.22	0.00	0.42	47.00	0.2784	0.0	0.0	1.0	0.0	2.4	0.0	0.6	0.2	0.0	0.1	8.4
52	1745.001	0.202	0.032	8.101	2.166	20.976	0.008	2.902	0.402	0.166	0.054	125.733	0.20	0.02	6.15	0.00	20.57	0.00	2.55	0.09	0.08	0.05	79.20	0.2610	0.0	0.0	1.2	0.0	3.9	0.0	0.5	0.0	0.0	0.0	15.2
53	1746.001	0.165	0.024	9.035	5.144	23.235	0.009	4.575	0.425	0.175	0	194.06	0.16	0.01	7.09	1.48	22.83	0.00	4.22	0.11	0.09	0.00	147.53	0.2785	0.0	0.0	1.3	0.3	4.1	0.0	0.8	0.0	0.0	0.0	26.5
54	1747.001	0.139	0.034	9.818	6.207	22.701	0.006	2.348	0.771	0.086	0	185.307	0.13	0.02	7.87	2.55	22.29	0.00	1.99	0.46	0.00	0.00	138.77	0.2550	0.0	0.0	1.5	0.5	4.4	0.0	0.4	0.1	0.0	0.0	27.2
55	1811.001	0.065	0.017	7.71	4.891	27.115	0.004	2.464	0.979	0.075	0.136	136.397	0.06	0.00	5.76	1.23	28.71	0.00	2.11	0.66	-0.01	0.14	89.86	0.2910	0.0	0.0	1.0	0.2	4.6	0.0	0.4	0.1	0.0	0.0	15.4

CONTROLES DE CALIDAD																																													
		DATA CRUDO (ug/L)											Resta de blancos (ppb (ug/L))											(g)	mg/kg																				
N° Vaso	Muestras	As	Cd	Cu	Cr	Mn	Hg	Mo	Ni	Pb	Se	Zn	As	Cd	Cu	Cr	Mn	Hg	Mo	Ni	Pb	Se	Zn	Peso	As	Cd	Cu	Cr	Mn	Hg	Mo	Ni	Pb	Se	Zn										
37	1759.001MD	7.423	0.336	89.431	15.978	404.182	0.020	11.474	9.512	1.149	2.128	733.723	7.42	0.32	87.48	12.32	403.77	0.01	11.12	9.20	1.06	2.13	687.19	0.2648	1.4	0.1	16.5	2.3	76.2	0.0	2.1	1.7	0.2	0.4	129.8										
38	1759.001MF	60.749	45.250	553.189	66.339	853.943	2.556	59.267	54.400	48.129	52.054	1204.834	60.74	45.24	551.24	62.68	853.53	2.54	58.91	54.08	48.04	52.05	1158.30	0.2630	2.0	-0.9	9.7	2.4	67.2	0.0	1.7	0.8	-0.4	0.4	125.2										
49	1813.001MD	7.780	0.219	45.166	10.491	235.371	0.009	11.951	8.063	0.734	0.942	5771.415	7.77	0.20	43.22	6.83	234.96	0.00	11.60	7.75	0.65	0.94	5724.88	0.2920	1.3	0.0	7.4	1.2	40.2	0.0	2.0	1.3	0.1	0.2	980.3										
50	1813.001MF	60.977	46.061	559.293	59.065	755.980	2.545	57.951	54.011	47.936	50.522	6009.141	60.97	46.05	557.35	55.40	755.57	2.53	57.60	53.70	47.85	50.52	5962.61	0.2766	2.0	-0.7	10.4	1.0	46.2	0.0	1.4	0.7	-0.4	0.1	987.5										
56	1811.001MD	0.054	0.013	7.373	5.074	25.277	0.002	2.259	0.738	0.050	0.124	140.397	0.05	0.00	5.43	1.41	24.87	0.00	1.90	0.42	0.00	0.12	93.86	0.2815	0.0	0.0	1.0	0.3	4.4	0.0	0.3	0.1	0.0	0.0	16.7										
57	1811.001MF	51.389	46.026	505.986	54.829	495.882	2.339	49.643	49.296	49.427	47.523	606.813	51.38	46.01	504.04	51.17	495.47	2.33	49.29	48.98	49.34	47.52	560.28	0.2655	0.3	-0.8	0.8	0.2	-4.9	0.0	-0.1	-0.2	-0.1	-0.5	11.4										
58	Bkdq1	0.000	0.005	1.230	3.623	0.343	0.018	0.361	0.203	0.115	0.000	47.832	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.03	0.00	1.30		Blancos de digestión																				
59	Bkdq2	0.013	0.024	2.666	3.699	0.476	0.008	0.350	0.428	0.063	0.000	45.234	0.01	0.01	0.72	0.04	0.07	0.00	0.00	0.11	0.00	0.00	0.00		0.0	0.0	1.9	3.7	0.4	0.0	0.4	0.3	0.1	0.0	0.0	46.5									
60	Ctrol digest 1	50.648	46.317	488.616	58.837	455.740	2.926	50.280	49.111	49.272	44.681	558.292	50.64	46.30	486.67	55.18	455.33	2.91	49.92	48.80	49.18	44.68	511.76																						
	Bk1	0.000	0.000	0.000	0.001	0.000	0.031	0.177	0.000	0.000	0.000	0.000													Blancos de lectura																				
	Bk2	0.000	0.002	0.000	0.001	0.000	0.027	0.170	0.002	0.000	0.000	0.000													0.0	0.0	0.1	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.7									
	Bk3	0.031	0.036	0.355	0.063	0.641	0.033	0.217	0.067	0.000	0.000	2.148																																	
	5 ug/L Control-Bajo 1	4.993	4.674	48.976	4.716	46.116	0.438	4.973	4.739	4.595	4.957	48.941																																	
	50 ug/L Control-Alto 1	47.177	49.653	499.031	49.503	489.864	2.258	45.828	50.405	49.783	51.136	479.807																																	
	5 ug/L Control-Bajo 2	5.045	4.675	49.193	4.681	46.240	0.502	4.974	4.748	4.651	4.675	49.468																																	
	50 ug/L Control-Alto 2	53.127	44.662	485.384	50.162	489.881	2.610	49.868	55.445	50.665	47.657	489.864																																	
	5 ug/L Control-Bajo 3	5.052	4.572	49.409	4.761	47.442	0.460	4.788	4.730	4.573	4.655	48.584																																	
	50 ug/L Control-Alto 3	51.019	48.844	487.731	51.733	494.619	2.297	50.912	50.510	48.772	49.782	490.078																																	

33	1671.001	0.414	0.011	28.158	0.964	133.968	ND	2.198	2.314	0.118	0.252	153.585	0.036	0.001	2.422	0.083	11.544	N/A	0.192	0.199	0.009	0.022	13.209
34	1672.001	0.376	0.024	13.674	<0.127	63.489	ND	1.164	1.265	<0.090	0.228	67.868	0.032	0.002	1.176	N/A	5.471	N/A	0.102	0.109	N/A	0.020	5.837
35	1758.001	0.140	0.047	129.309	2.509	42.798	ND	1.808	2.290	0.141	0.430	123.541	0.012	0.004	11.121	0.217	3.688	N/A	0.158	0.197	0.011	0.037	10.625
36	1759.001	1.272	0.055	16.364	2.190	70.935	ND	2.109	1.556	0.193	0.379	120.943	0.110	0.005	1.407	0.189	6.113	N/A	0.184	0.134	0.016	0.033	10.401
39	1785.001	0.306	0.048	<10.403	0.197	35.338	ND	2.029	1.131	0.101	0.216	<35.626	0.026	0.004	N/A	0.017	3.045	N/A	0.177	0.097	0.008	0.019	N/A
40	1806.001	6.133	0.026	12.777	1.177	74.104	ND	1.988	0.987	0.139	0.286	85.689	0.529	0.002	1.099	0.102	6.386	N/A	0.173	0.085	0.011	0.025	7.370
41	1711.001	0.207	0.016	<10.403	1.007	90.448	ND	0.943	1.191	<0.090	0.589	202.214	0.018	0.001	N/A	0.087	7.794	N/A	0.082	0.103	N/A	0.051	17.391
42	1712.001	0.693	0.036	<10.403	0.835	46.465	ND	1.788	1.823	0.151	0.226	137.046	0.060	0.003	N/A	0.072	4.004	N/A	0.156	0.157	0.012	0.019	11.786
43	1714.001	0.139	0.048	133.344	2.430	67.159	ND	1.970	1.466	0.095	0.397	135.452	0.012	0.004	11.468	0.210	5.787	N/A	0.172	0.126	0.008	0.034	11.649
44	1715.001	0.276	0.082	160.494	5.265	57.064	ND	1.697	1.204	<0.090	0.366	85.291	0.024	0.007	13.803	0.455	4.917	N/A	0.148	0.104	N/A	0.031	7.335
45	1786.001	1.579	0.017	<10.403	0.966	39.973	ND	1.913	1.075	0.157	0.173	101.406	0.136	0.001	N/A	0.083	3.445	N/A	0.167	0.093	0.013	0.015	8.721
46	1809.001	<0.123	0.027	19.568	0.315	<21.316	ND	1.869	0.830	<0.090	0.157	<35.626	N/A	0.002	1.683	0.027	N/A	N/A	0.163	0.072	N/A	0.014	N/A
47	1812.001	1.746	0.017	<10.403	2.101	41.459	ND	1.707	1.454	0.090	0.161	79.998	0.151	0.001	N/A	0.182	3.573	N/A	0.149	0.125	0.007	0.014	6.880
48	1813.001	1.135	0.033	<10.403	0.975	34.541	ND	1.739	1.141	0.091	0.155	877.960	0.098	0.003	N/A	0.084	2.977	N/A	0.152	0.098	0.007	0.013	75.507
51	1713.001	<0.123	<0.007	ND	ND	ND	ND	0.551	<0.231	ND	<0.116	ND	N/A	N/A	N/A	N/A	N/A	N/A	0.048	N/A	N/A	N/A	N/A
52	1745.001	<0.123	<0.007	ND	ND	ND	ND	0.488	ND	ND	ND	<35.626	N/A	N/A	N/A	N/A	N/A	N/A	0.043	N/A	N/A	N/A	N/A
53	1746.001	ND	ND	ND	0.266	ND	ND	0.758	ND	ND	ND	<35.626	N/A	N/A	N/A	0.023	N/A	N/A	0.066	N/A	N/A	N/A	N/A
54	1747.001	ND	<0.007	ND	0.499	ND	ND	0.391	<0.231	ND	ND	<35.626	N/A	N/A	N/A	0.043	N/A	N/A	0.034	N/A	N/A	N/A	N/A
55	1811.001	ND	ND	ND	0.211	ND	ND	0.362	<0.231	ND	ND	<35.626	N/A	N/A	N/A	0.018	N/A	N/A	0.058	N/A	N/A	N/A	N/A
EVALUACIÓN CONTROLES DE CALIDAD																							
		% Recuperación											% RPD										
Nº Vaso	Muestras	As	Cd	Cu	Cr	Mn	Hg	Mo	Ni	Pb	Se	Zn	As	Cd	Cu	Cr	Mn	Hg	Mo	Ni	Pb	Se	Zn
37	1759.001MD																						
38	1759.001MF	113	81	86	102	82	103	92	81	89	100	91											
49	1813.001MD																						
50	1813.001MF	113	85	106	96	112	102	88	87	90	99	114											
56	1811.001MD																						
57	1811.001MF	105	85	100	99	89	100	91	95	98	90	89											
60	Ctrol digest 1	101	93	97	110	91	117	100	98	98	89	102											
5 ug/L	Control-Bajo 1	100	93	98	94	92	88	99	95	92	99	98											
50 ug/L	Control-Alto 1	94	99	100	99	98	90	92	101	100	102	96											
5 ug/L	Control-Bajo 2	101	94	98	94	92	100	99	95	93	94	99											
50 ug/L	Control-Alto 2	106	89	97	100	98	104	100	111	101	95	98											
5 ug/L	Control-Bajo 3	101	91	99	95	95	92	96	95	91	93	97											
50 ug/L	Control-Alto 3	102	98	98	103	99	92	102	101	98	100	98											
		Control Bajo Verif. Curva						Control Alto Verif. Curva / Ctrl Dig / Fortificación															
Concentracion inicial (ppb)		100 mg/L (MIX, Cu, Zn, Mn), 10 mg/L (Hg)																					
Lote		219125064-02(MIX), 220065044(Cu), 220025040(Zn), 220105051(Mn),221065170(Hg)																					
Volumen (uL)		22.5 uL (Cu, Mn, Zn), 2.5 uL (MIX), 2.5 uL (Hg)						112.5 uL (Cu, Mn, Zn), 12.5 uL (MIX), 25 uL (Hg)															
Concentración final (ppb)		50 ppb (Cu, Mn, Zn), 5 ppb (MIX), 0.5ppb (Hg)						250 ppb (Cu, Mn, Zn), 25 ppb (MIX), 2.5ppb (Hg)															
Fecha Venc.		09/06/2025 (Cu), 12/10/2025 (Mn), 11/02/2025 (Zn), 13/05/2024 (MIX), 01/08/2023(Hg)																					
OBSERVACIONES:																	Limite de Cuantificación (LOQ) : Cr = 0.127 , Mn= 21.316 , Ni = 0.231 , Cu = 10.403, Zn =35.626, As = 0.123, Se = 0.116, Mo = 0.293, Cd = 0.007, Hg = 0.006, Pb = 0.090						

MT/AC/CM/WG/DB
Especialista/Técnico

OL
Supervisor Técnico UCCIRT

04/06/2024
Fecha de Reporte